



CODEN [USA]: IAJPB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1841547>Available online at: <http://www.iajps.com>

Research Article

**A COMPARATIVE RESEARCH TO ASSESS THE STAGES OF
SERUM RENIN IN CORRELATION TO DIASTOLIC AND
SYSTOLIC BLOOD PRESSURE (BP) AMONG HYPERTENSIVE
PATIENTS**¹Dr. Saleha Rahat, ²Muhammad Usman Rafiq, ²Waqas Ahmad¹DHQ Teaching Hospital Gujranwala²Benazir Bhutto Hospital Rawalpindi**Abstract:**

Objective: To assess serum renin stages in a relationship by systolic in addition diastolic blood pressure into hypertensive patients.

Material and Methods: We conducted this research at Services Hospital, Lahore (Biochemistry Department) from February to September 2017. The over-all eighty focusses stayed involved, obtainable of them thirty-eight patients remained Having got important hypertension and forty-two stayed standard fit focusses. Serum equal of renin stayed restrained via RIA (equipment) while glucose, urea and creatinine through biochemical procedures.

Result: This current research offered there and displayed very substantial discordance of serum renin heights in crucial hypertensive patients. While average worth of serum renin originates meaningfully tall ($p < 0.002$) inside hypertensive focusses but then again not altogether hypertensive consume higher serum renin gauge nonetheless solitary the sub-set of 15 patients (38%) consumes higher phase whereas extra sub-set of 23 patients (62%) takes standard or little serum gauge. We noticed the optimistic connection (+0.265 and +0.219) having an altitude of systolic also BP separately. Glucose, urea also creatine displays unimportant outcomes once associated with normotensives.

Conclusion: The results of our existing research propose that serum renin would be restrained into hypertensives since its gauge aids in therapy and diagnosis of alike patients. Current research stayed done on the minor taster extent and offers reference point statistics of renin stages in hypertensive focusses, that's why we suggested that identical kind of research must be approved on huge population extent to measure the status of overhead limits in hypertensives.

Keywords: Hypertension, Norm tension and Renin Angiotensin Scheme.

Corresponding author:**Dr. Saleha Rahat,**

DHQ Teaching Hospital,

Gujranwala

QR code



Please cite this article in press Saleha Rahat et al., A Comparative Research to Assess the Stages of Serum Renin in Correlation to Diastolic and Systolic Blood Pressure (BP) Among Hypertensive Patients., Indo Am. J. P. Sci, 2018; 05(12).

INTRODUCTION:

Vital hypertension stays repeated, long-lasting also old associated illness that establishes a troubled connection among heart productivity of blood flow besides his marginal discharge also frequently weakens cardiovascular besides renal problems. Hypertension is well-definite by way of systolic BP of 145 mmHg or superior, diastolic BP of 95 mmHg or more or patients enchanting antihypertensive drugs [1]. Liberal growth into systolic blood pressure has been noted till ninth decade of a humanoid lifetime. By disparity, diastolic blood pressure increases solitary till 55 years of oldness, afterwards which it any drives downcast or develops endless [2]. Important Hypertension books for 90% of altogether situations of hypertension distressing around 1.2 billion people universally [3]. Franklin et al. 2003 described that the rise in oldness fallouts the change as of diastolic burden to systolic burden besides subsequently to beat pressure which is measured as per key forecaster of circulatory menace. For those who are underneath oldness of 45 years, diastolic pressure exposed to remain the toughest forecaster whereas at age among 45–60 years stayed evolution historical. As of oldness 59 years ahead, diastolic pressure has exposed the undesirable association by the danger of coronary proceedings, so that beat pressure developed the greater prognosticator to systolic pressure [4]. It has been found that mid-elderly and elder heart patients grow inferior by higher beat pressure relatively to average pressure is dependable in males and females, in preserved and uncured hypertensive persons and in pretentious persons having the past of ischemic heart attack or renal letdown [5,6]. That has been found that the numerous physical instruments are concerned in the conservation of standard blood pressure in addition to its instabilities might have the part in the growth of vital hypertension. Amongst aspects that remain the very significant in vital hypertension are NaCl-consumption, overweight, insulin confrontation, DM, smouldering, renin-angiotensin scheme and concerned anxious scheme [7]. But renin-angiotensin system scheme stays the important instrument for moderating BP and physique fluid capacity [8]. In the current research on early women, it was established that hypertension is facilitated mostly via the renin-angiotensin scheme [9]. Renin is the proteolytic enzyme unconfined as of renal-Juxtglomerular besides matter renin-angiotensin scheme that circuitously arouses angiotensin 2 that in return work as the optimistic incentive for aldosterone emission in addition to purpose in the guideline of water besides electrolyte poise. Laragh et al. (1976) take suggested dimension of plasma renin movement in specific by hypertension but then again immobile renin showed

the treatment continued to be debatable. Dimension of plasma renin action has too been suggested as add-on treatment in patients unmeasured on early monotherapy, even though supportive indication for delay of renin sketching is partial. Tall equal of plasma renin movement frequently continued related by superior BP answers to atenolol and slighter replies to hydrochlorothiazide. Assumption nearly causes of plasma renin action was mathematically sovereign of class, oldness, and extra features. It is fine recognized medically that PRA imitates the action of mingling Renin Angiotensin Scheme. Vital Hypertensive Patients can in the least of 3 situations which comprise little, standard or tall PRA. Exhaustive quantification of renin outline appears to be a very significant restriction inaccurate uneasiness of vital hypertension and may be the forecaster of hypertensive invigorated heart recompense. In this current research, serum renin planes remained restrained in a suggestion by systolic besides diastolic BP in equally normotensive also hypertensive patients by varied domestic and national derivation via by means of radioimmunoassay.

MATERIALS AND METHODS:

We conducted this research at Services Hospital, Lahore (Biochemistry Department) from February to September 2017. The altogether Eighty (80) participants remained involved in the current research study, out of those thirty-eight (38) participants have got important hypertension nominated from Medicinal OPD. Those Hypertensive patients stayed what's more enchanting no medication or if attractive medication remained still at slightest 3 days earlier pleasing blood model. In the calculation, forty-two (42) standard regulator healthy focusses of mutual genders of comparable ages by standard BP remained too involved in the current research.

Seven to nine ml of different plasma remained composed as of every patients and regulator underneath all sterile actions. The plasma remained directly removed into the fresh test cylinder and permitted to lump at normal temp for 25 to 35 minutes. The lifeblood was at that time centrifuged for 15-20 minutes at 3100 rpm. Serum was detached also reserved in serum Eppendorf cylinders by tags, kept at -550C to -650C till chemical limitations remained achieved. All designated focus remained separated into 2 sets.

Set A -: Standard controller fit population.

Set B-: Analyzed patients by Hypertension.

Hypertensive situations:

1. Age among 25-55 years.
2. Mutual Genders

3. Patients encounter WHO standards of hypertension i.e.

a. Patients who have Diastolic BP ≥ 95 mm Hg.

b. Patients with Systolic BP ≥ 145 mm Hg.

c. Patients taking antihypertensive medicines. Controller Participants:

1. Oldness among 25-55 years.

ii. Mutual Genders

iii. Patients who got standard BP i.e.

Diastolic BP < 95 mm Hg plus Systolic BP < 145 mm Hg.

iv. Permitted of evident illness just as Renal, Hepatic, Cardiac or Digesting.

Succeeding remained omitted in the current study: offspring, expecting females, oldness > 45 years, fresh main systemic disease, patient's misery from illnesses of liver, kidney also DM, post MI in addition CCF, patients who got endocrine illnesses just as hyperaldosteronism, Cushing illness or pheochromocytoma, patients by means of diuretic, calcium frequencies blocker or ACE-inhibitors. Plasma renin was resolute by Renin IRMA, RIA equipment reference No. RIA-4542 made by DRG therapies, Germany. Examination remained completed on Gamma Glittering Hostage of Oakfield. Serum urea is resolute via biochemical diacetyl monoxide technique, serum creatinine via gaffe's response (organic process) and creatinine by ortho-toluidine technique. After execution completely examinations by biochemical technique/equipment approaches, data was functional by means of SPSS and Pearson association was functional to discover association amongst diverse limitations. The Average, S.D. and S.E.M. are created and extra numerical examination just like result r rate is accomplished.

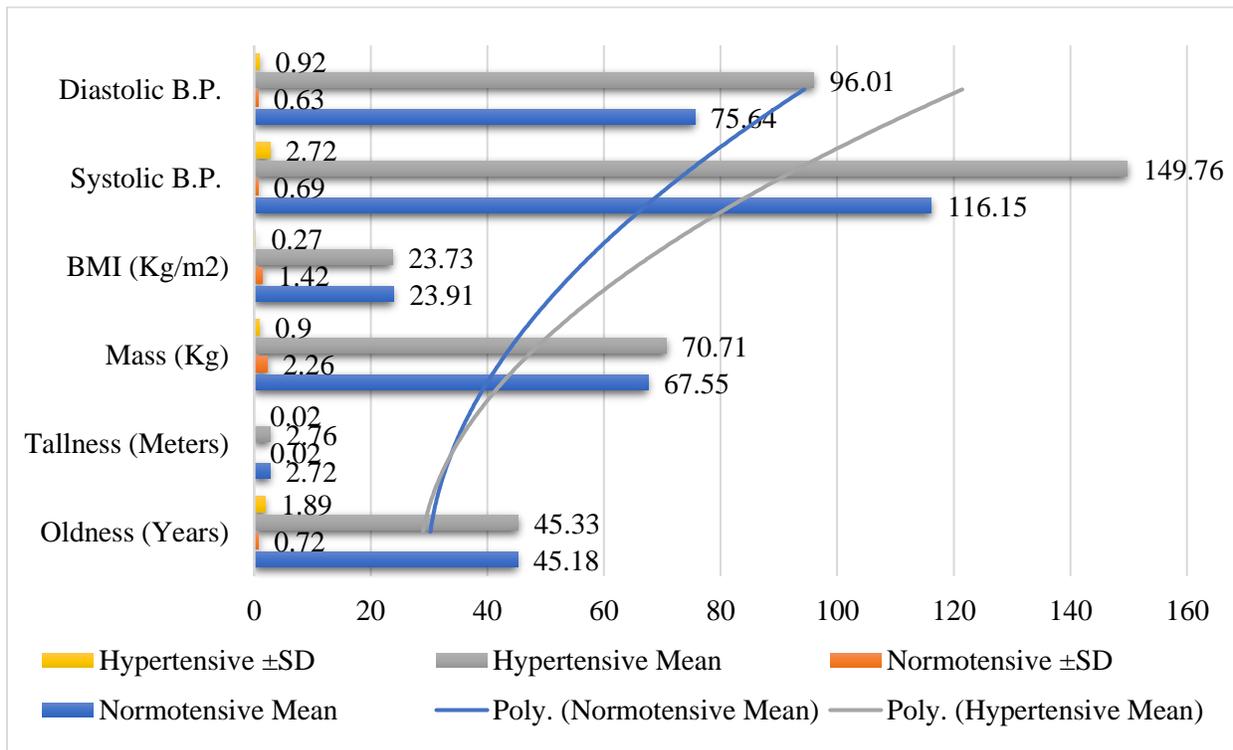
RESULTS:

The outcomes of this current research are described in Table – 1 to 4. Table – 1 displayed sum of

participants in normotensive also hypertensive set in addition contrast of biophysical variables in those sets. The table presented that average rate of oldness, tallness, mass and BMI consume unimportant alteration in mutually both sets. While average worth of systolic besides diastolic BP has mathematically exceedingly substantial variance ($p < 0.002$) in the hypertensive set once associated to normotensive. Table – 2 exhibited average price of renin besides extra biological restrictions in together sets. The serum renin attentions in normotensive besides hypertensive sets remained 21.92 ± 2.25 and 42.87 ± 5.93 correspondingly has a mathematically substantial alteration of $p < 0.002$ while urea, creatinine and glucose display unimportant alteration when associated to controls. While average renin worth in hypertensives displayed important modification once associated with standard gearshifts (Table – 2). Furthermore, once hypertensive focusses stayed sub-assembled grounded on renin worth (4.01 to 34.01 pg./ml) it was detected which worth does not increase into altogether hypertensive topics. In entire thirty-eight hypertensives solitary fifteen (38%) displayed tall renin whereas in the mainstream of twenty-three (62%) displayed standard or small renin worth. On this foundation hypertensive focusses are gathered into 2 substitute sets, one and only by tall renin value having series of 41.85 to 122.13 pg./ml and with average \pm S.E.M. of 73.76 ± 7.86 whereas extra by standard renin worth by choice of 11.02 to 33.92 pg./ml and consuming average \pm S.E.M. of 22.23 ± 2.71 as revealed in Table – 3. Table – 4 displayed constant connection of renin by systolic and diastolic BP into hypertensive patients. Results of R-value are not ample more solid, renin worth displayed optimistic connection by the altitude of systolic besides diastolic BP with R-value of $+0.265$ besides $+0.219$ correspondingly. In adding, renin displays extra optimistic connection by creatinine having R-value of $+0.464$.

Table – I: Contrast of biophysical variables in normotensive besides hypertensive patients (Standards are voiced as average \pm S.E.M.)

Biophysical Limitations	Normotensive		Hypertensive	
	Mean	\pm SD	Mean	\pm SD
Oldness (Years)	45.18	0.72	45.33	1.89
Tallness (Meters)	2.72	0.02	2.76	0.02
Mass (Kg)	67.55	2.26	70.71	0.9
BMI (Kg/m ²)	23.91	1.42	23.73	0.27
Systolic B.P.	116.15	0.69	149.76	2.72
Diastolic B.P.	75.64	0.63	96.01	0.92

**Table – II:** Contrast of chemical limitations in normotensive and hypertensive participants (Standards remain stated as average \pm S.E.M.)

The sum of explanations in addition components is specified in asides.

Biophysical Limitations	Normotensive		Hypertensive	
	Mean	\pm SD	Mean	\pm SD
Serum Renin	21.92	2.25	42.87	5.93
Serum Urea	34.89	2.07	33.18	2.49
Serum Creatinine	0.96	0.03	0.92	0.04
Blood Glucose	89.75	2.15	91.88	2.14

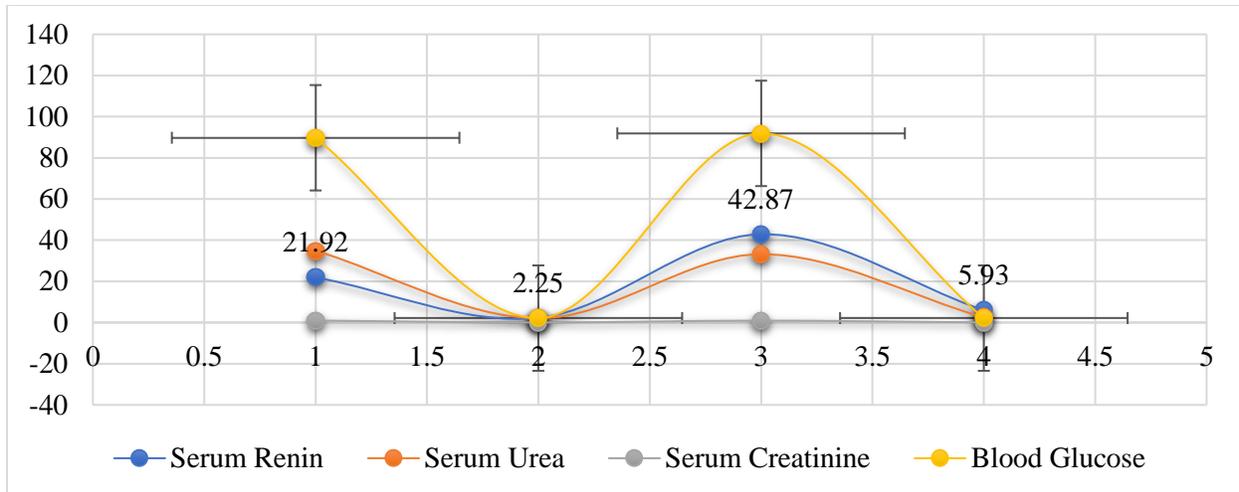


Table – III: Tall and Small Renin equal set of Hypertensive Patients

Tall Renin Subset (>34.00 pg./ml)	Usual Renin Subset (4 to 34.00 Pg./ml)	Tall Renin Subset (>34.00 pg./ml)	Usual Renin Subset (4 to 34.00 Pg./ml)
103.6	-	-	20.43
75.33	-	67.29	-
41.85	-	-	26.09
-	28.92	-	21.41
68.63	-	-	16.01
-	30.01	122.13	-
95.33	-	45.15	-
-	27.81	-	27.72
66.19	-	43.81	-
54.44	-	-	33.92
-	15.44	-	14.8
-	34.01	-	11.02
-	32.89	118.31	-
97.74	-	81.92	-
-	30.92	-	14.76
48.98	-	-	21.58
-	33.13	-	9.88
50.31	-	-	25.98
-	11.99	-	12.95
-	12.9	-	20.92

Mean and No 70.76 (n=15) 23.24 (n=23)

Table – IV: Displayed constant connection serum renin vs systolic besides diastolic BP in hypertensive participants.

Outcomes		Age	Mass	Tall	BMI	Sys BP	Día BP	Renin	Urea	Creatinine	Glucose
Age	Pearson Correlation	0.62	0.985	0.151	0.011	0.019	0.044	0.051	0.126	0.042	-0.05
	Sig. (2-tailed)	0.99	0.237	0.682	0.954	0.911	0.791	0.758	0.442	0.801	0.782
	N	42	42	42	42	42	42	42	42	42	42
Weight	Pearson Connection	0	-0.61	-0	-0.29	-0.05	-0.02	-0.29	-0.16	-0.28	-0.13
	Sig. (2-tailed)	0.71	0.32	0.75	0.074	0.774	0.863	0.072	0.317	0.084	0.414
	N	42	42	42	42	42	42	42	42	42	42
Height	Pearson Connection	0.97	0.52	0.98	-0.5	0.196	0.09	0.085	0.234	0.287	0.094
	Sig. (2-tailed)	-0.31	-0.41	-0.51	0.002	0.229	0.584	0.607	0.149	0.075	0.568
	N	42	42	4	42	42	42	42	42	42	42
BMI	Pearson Connection	0	0.006	0.002	2	0.184	-0.08	0.247	-0.05	-0.06	-0.28
	Sig. (2-tailed)	0.76	0.318	0.259	0.257	0.26	0.646	0.128	0.747	0.742	0.081
	N	42	42	42	42	42	42	42	42	42	42
Sys BP	Pearson Connection	0.85	0.98	0.781	0.641	0.16	0.461	0.146	0.147	0.516	0.091
	Sig. (2-tailed)	-0.01	-0.98	-0.83	-0.98	-0.84	-0.61	-0.69	-6	-0.68	-0.28
	N	42	42	42	42	42	42	42	42	42	42
Día BP	Pearson Connection	0.14	0.091	0.176	0.017	0.019	0.781	0.127	0.38	0.749	0.126
	Sig. (2-tailed)	0.84	0.47	0.739	0.47	0.02	0.436	0.014	0.184	0.469	0.443
	N	42	42	42	42	42	42	42	42	42	42
Renin	Pearson Connection	0.98	0.631	0.157	0.123	0.45	0.238	0.001	0.061	0.71	0.168
	Sig. (2-tailed)	0.55	0.117	0.88	0.167	0.124	0.083	0.543	0.432	0.518	0.304
	N	42	42	42	42	42	42	42	42	42	42
Urea	Pearson Connection	0.01	0.061	0.093	0.093	0.061	0.871	0.123	0.451	0.871	0.084
	Sig. (2-tailed)	0.9	0.345	0.208	0.412	0.569	0.094	0.124	0.712	0.918	0.608
	N	42	42	42	42	42	42	42	42	42	42
Creatinine	Pearson Connection	0.16	0.391	0.239	0.093	0.67	0.235	0.441	0.7	0.257	0.331
	Sig. (2-tailed)	0.94	0.073	0.852	0.754	0.147	0.258	0.58	0.16	0.051	0.421
	N	42	42	42	42	42	42	42	42	42	42
Glucose	Pearson Connection	0.12	0.567	0.652	0.51	0.16	0.129	0.918	0.26	0.369	0.179
	Sig. (2-tailed)	0.99	0.826	0.234	0.642	0.215	0.873	0.23	0.125	0.621	0.271
	N	41	41	41	41	41	41	41	41	41	41

DISCUSSION:

Hypertension is measured very essential in addition adaptable danger issue aimed at coronary heart illness, congestive heart letdown, blow, outlying vascular illness and end-phase renal illness. Consequently, surgeons should not solitary identify

in addition to cure patients by hypertension nevertheless they must to teach them about strong routine in addition defensive actions to stop the occurrence of hypertension inside inhabitants. The current research is passed out on vital hypertensive patients. Serum renin, systolic also diastolic BP

stayed restrained of every person. Altogether of 80 participants are registered for this research, in all those 38 are identified vital hypertensives that are also on food regulator or medicines whereas 40 standard fit controller participants of identical oldness and gender by standard BP are too involved for contrast. The average age aimed at our normotensive besides hypertensive set is 45.in addition 45.33 years by mathematically unimportant alteration. Resnick and Laragh *et al.*, 2004 too split important hypertensive participants into 'huge' 'standard' or 'small' renin sets demanded that dimension of renin stages in patients having important hypertension allows recognizable subcategories of patients to be defined besides that those subcategories display significant alterations in prediction in addition answer to treatment. Patients remained separated into 'tall', 'standard' and 'small' renin subcategories recommended that the position of RAS in BP guideline is glowing recognized. Tall RAS action has to been occupied in construction by raised heart danger in patients by vital hypertension. Statistics as of epidemiological researches have connected tall plasma renin stages in vital hypertensive patients to Heart difficulties. Correspondingly, Hans and Gavros specified that indication recommends that hypertensive participants having small attention of renin had less expected to have heart attacks, blows or renal difficulties as compared to these having tall renin action.

CONCLUSION:

In assumption to outcomes of this research offer respected info in addition connotation of renin in patients of vital hypertension. The results of this research recommend that serum renin would be restrained in hypertensives due to its phase not solitary aids in cure but benefits in the forecast of these type of patients. Current research stayed done on the minor population magnitude and offers the zero figures of renin stages in hypertensive patients, so we suggested that identical kind of research must be approved on huge example magnitude to measure the position of overhead limitations in hypertensives.

REFERENCES:

1. Silberberg AR, Sandberg K. Direct measurement of airway pressure in ventilated very low birth weight infants. *Conf Proc IEEE English Medium Biological Sciences* 2007; 2:2869-71.
2. Hans R. Brunner and Guavas H. Angiotensin blockade for Hypertension: A promise fulfilled. *Lancet* 2004; 360:991-3.
3. Ailments K, Parikh T and Vigoda M. The renin-angiotensin system in essential hypertension Association with Heart risk: *BP*.2003; 9:71-9.
4. Thurston H, Bing RF, Phil JEF and Swales JD. Renin subgroups in essential hypertension: An analysis and critique *Q J Med* 1979; 48:326-38.
5. Chobani an AV, Barks GL, Black HR, Cushman WC, Green LA, Izzo Land Jones DW. The VII report of JNC on the prevention, detection, evaluation and treatment of High Blood Pressure. *JAMA* 2004; 290:(20):2561-73.
6. Adamczyk M, KitKat F and Weick A. Relationship between Plasma Renin profile and leptinemia in patients with Essential Hypertension. *J Hum Hypertension* 2004; 15:504-10.
7. Sharma S and Kurtas C. Hypertension. Aug 2007. Available at: www.emedicine.com/med/topic1107.htm (Opened Nov 13, 2007).
8. Beavers G and Gregory YH Lip. ABC of Hypertension the Pathophysiology of Hypertension. *BMJ* 2002; 323:913-7.
9. Hall JE, Brands MW, Henagar JR. Angiotensin ii and long-term arterial pressure regulation: The overriding dominance of the kidney. *J Am Soc Nephron* 2001; 11(Suppl 13): S259-66.
10. Taylor and Francis. Is there an answer. *IUBMB life* 2005; 57; 11:634-6
11. Stassen JA, Wang J, Bianchi G, Birkenhead WH. Essential Hypertension. *The Lancet* 2005; 362:1630-42.
12. Virginia Coy. Genetics of Essential Hypertension. *J Am Academy Nurse Practitioners* 2007; 18(7): 220-24.